

AGREEMENT FOR THE PURCHASE OF GOODS AND SERVICES

THIS AGREEMENT FOR THE PURCHASE OF GOODS AND SERVICES ("Agreement") is made _____, 2018 between Thatcher Company of California, Inc. ("Contractor"), whose address is P.O. Box 27407, Salt Lake City, UT, 84127-0407, and telephone number is 800-348-0034 and the City of Stockton, a municipal corporation ("City").

In consideration of the mutual promises set forth in this Agreement, the parties agree as follows:

1. Goods to be provided and services to be performed. Contractor shall provide the goods and perform the services as set forth in the Request for Bid documents and on the attached Exhibit A incorporated herein by reference. Contractor shall begin providing the goods/performing the services on July 1, 2018 and complete providing the goods/performing the services by June 30, 2019. The parties may agree to extend the contract on a year-to-year basis, not to exceed three (3) yearly renewals. The price for any succeeding period of service shall be agreed upon by both parties.
2. Compensation. For the goods and services under this Agreement, City shall pay Contractor the sum of \$566.00 per dry ton for delivery of Ferric Chloride. The not-to-exceed amount for the potential 4-year contract term is \$947,200.
3. Method of Payment. City shall pay Contractor within 30 days from the date Contractor's invoices are approved by the City Manager. Contractor shall submit monthly invoices.
4. Maintenance. Contractor shall maintain the goods as set forth in Exhibit A at a cost as set forth in Exhibit A. Contractor shall respond to calls for required maintenance from City personnel within 24 hours of the call; required maintenance occurs when the self check system fails to perform any of its functions. If Contractor is unable to resolve routine maintenance issues by phone within 48 hours, Contractor shall provide to City personnel a resolution report indicating how and when the Contractor intends to resolve the issue. Within the period of the maintenance agreement, Contractor shall implement all software and firmware upgrades to the goods identified in Exhibit A at no cost to City. If software and firmware upgrades require a hardware upgrade, Contractor shall provide the upgraded hardware at no cost to the City. City personnel shall review and approve any upgrades prior to their installation.
5. Warranty. Contractor warrants that for one year the goods installed shall be free of defects in materials and workmanship. The one year period shall begin upon the date the City provides in writing to Contractor acceptance of the goods. The warranty under this section shall provide coverage equal to or greater than those warranties that are customary in the industry and, at a minimum, include all parts and labor,

6. Hold Harmless. To the fullest extent permitted by law, Contractor shall hold harmless, defend at its own expense, and indemnify the City of Stockton, its Mayor, Council, officers, representatives, agents, employees and volunteers, against any and all liability, claims, losses, damages, or expenses, including reasonable attorney's fees, arising from all acts or omissions to act of contractor or its officers, agents, or employees in rendering services under this contract; excluding, however, such liability, claims, losses, damages, or expenses arising from the City of Stockton's sole negligence or willful acts. The duty to defend and the duty to indemnify are separate and distinct obligations. The indemnification obligations of this section shall survive the termination of this agreement.

7. Insurance. During the term of this Agreement, Contractor shall maintain in full force and effect at its own cost and expense the insurance coverage set forth on the attached Exhibit B and shall otherwise comply with the provisions of Exhibit B.

8. Business License. Prior to its execution of this Agreement, Contractor shall obtain a City business license.

9. Audit. City reserves the right to periodically audit all charges for good and services provided by Contractor.

10. Ownership of Goods. All goods accepted by the City shall be the property of the City.

11. Changes to the Agreement. This Agreement may not be modified except in writing by both parties.

12. Applicable Law. This Agreement shall be governed by the laws of the State of California and venue for any action brought in state court shall be in the Superior Court, County of San Joaquin, Stockton Branch or, for actions brought in federal court, the United States District Court for the Eastern District of California, Sacramento Division.

13. Non-Assignability. Contractor shall not assign or transfer this Agreement or any interest or obligation in this Agreement without the prior written consent of the City and then only upon such terms and conditions as City may set forth in writing.

14. Notices. All notices herein required shall be in writing and shall be sent certified or registered mail, postage prepaid, addressed as follows:

To Contractor:	<u>Craig Thatcher</u>	To City:	City Manager
	<u>Thatcher Co. of California</u>		City of Stockton
	<u>P.O. Box 27407.</u>		425 N. El Dorado St.
	<u>Salt Lake City, UT 84127-0407</u>		Stockton, CA 95202

15. Conformance to Applicable Laws. Contractor shall comply with all applicable Federal, State and Municipal laws, rules and ordinances. Contractor shall not

discriminate in the employment of persons or in providing services under this Agreement on the basis of any legally protected classification including race, color, national origin, sex or religion of such person.

16. Miscellaneous Provisions.

a. City may terminate this Agreement at any time by mailing notice to Contractor at the address first stated above. Contractor shall be paid for that portion of goods provided / services provided when notice is received.

b. Contractor shall not assign or transfer this Agreement.

c. In the performance of this Agreement, Contractor, its employees and agents shall have the status of an independent contractor and not as an employee of the City for any purpose.

d. If either City or Contractor waives a breach of this Agreement, such waiver shall not constitute a waiver of other or succeeding breaches of this Agreement.

e. This Agreement constitutes the entire understanding of the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement the date and year first above written.

CITY OF STOCKTON

CONTRACTOR

KURT O. WILSON
CITY MANAGER

By:

Signature

Print name

Title

[If Contractor is a corporation, signatures must comply with Corporations Code §313]

ATTEST:

APPROVED AS TO FORM

BRET HUNTER, CMC
CITY CLERK

CITY ATTORNEY

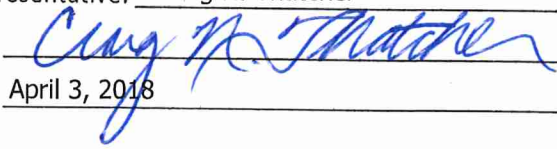
EXHIBIT A

BAY AREA CHEMICAL CONSORTIUM
STANDARD AGREEMENT, PAGE 1 OF 2
BID NO. 06-2018
SUPPLY AND DELIVERY OF FERRIC CHLORIDE

Bay Area Chemical Consortium (BACC)
c/o Dublin San Ramon Services District
Regional Wastewater Treatment Facility
7399 Johnson Drive
Pleasanton, CA 94588

Dear Sirs:

I hereby agree to furnish Ferric Chloride identified in the attached bid forms, as solicited by the Bay Area Chemical Consortium (BACC), to one or more of the participating BACC Agencies.

Company: Thatcher Company of California, Inc.
Address: P. O. Box 27407
City, State, ZIP: Salt Lake City, UT 84127-0407
Phone: (800) 348-0034 Ext. 2538
Email: kay.conley-rawson@tchem.com; wendy.richmond@tchem.com
Authorized Representative: Craig N. Thatcher
Signature: 
Date: April 3, 2018

WE ACKNOWLEDGE RECEIVING ADDENDUM/ADDENDA NUMBER 1 THROUGH 1.

SPECIFIC DEVIATIONS (if applicable, attach additional sheets if necessary):

STANDARD AGREEMENT, PAGE 2 OF 2

BIDDER INFORMATION

1. Legal Name of Bidder:
Thatcher Company of California, Inc.
2. Bidder's Street Address:
8625 Unsworth Avenue
3. Mailing Address:
P. O. Box 27407, Salt Lake City, UT 84127-0407
4. Business Telephone: (800) 348-0034 Ext. 2538 Fax Number: (916) 386-2516
5. Type of Supplier:
☐ Sole Proprietor ☐ Partnership ☒ Corporation
 If Corporation, indicate State where incorporated: California
6. Business License Number issued by the City where the Supplier's principal place of business is located.
 Number: 1008886 Issuing City: Sacramento
7. Supplier Federal Tax Identification Number: 95-2944197
8. Emergency Contact: Name: Philip Belden
 Phone Number: (702) 219-2372
9. Order Contact: Name: Elida De La Torre
 Address: 8625 Unsworth Ave., Sacramento, CA 95828
 Phone Number: (916) 389-2516 Fax Number: (916) 389-2517
 Email: cscs@tchem.com
10. References:

<u>Company/Agency Name</u>	<u>Contact Name</u>	<u>Phone Number</u>
1) <u>Marin Municipal Water Dist., CA</u>	<u>Paul Sellier</u>	<u>(415) 945-1557</u>
2) <u>Napa Sanitation, CA</u>	<u>Dan Fritz</u>	<u>(707) 258-6000</u>
3) <u>Sacramento County, CA</u>	<u>Adam Wilkinson</u>	<u>(916) 875-4284</u>
11. Chemical Manufacturer's name and address (if different from Bidder):
U. S. Magnesium, LLC
238 North 2200 West
Salt Lake City, UT 84116

**Non-Collusion Affidavit
To Be Executed By Bidder and Submitted With Bid**

Utah
State of ~~California~~)
) ss.
County of Salt Lake)

Craig N. Thatcher, being first duly sworn, deposes and says that he or she is
(Contractor's Authorized Representative)

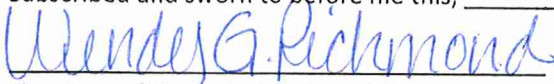
President of Thatcher Co. of California, Inc. the party making the
(Title of Representative) (Contractor's Name)

Foregoing bid that the bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation; that the bid is genuine and not collusive or sham; that the bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid, and has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or that anyone shall refrain from bidding; that the bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bid, or to secure any advantage against the public body awarding the contract of anyone interested in the proposed contract; that all statements contained in the bid are true; and, further, that the bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, or paid, and will not pay, any fee to any corporation, partnership, company association, organization, bid depository, or to any member or agent thereof to effectuate a collusive or sham bid.

I declare under penalty of perjury under the laws of the state of California that the foregoing is true and correct.

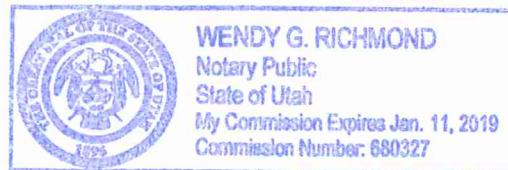

Signature of: President, Secretary, CRAIG N. THATCHER
Manager, Owner, or Representative

Subscribed and sworn to before me this, 3rd day of April, 20 18


Signature of Notary Public In and For

The County of Salt Lake,

State of Utah



All Signatures Must Be Witnessed By Notary

**BAY AREA CHEMICAL CONSORTIUM
BID FORM FOR BID NO. 06-2018**

Sealed bids must be enclosed in an envelope clearly marked:

**"BID FOR FERRIC CHLORIDE
BACC BID NO. 06-2018"**

And delivered to:

Gemma Lathi
Administrative Analyst – Operations
Dublin San Ramon Services District
Regional Wastewater Treatment Facility
7399 Johnson Drive
Pleasanton, CA 94588

No later than 9:00 A.M. PDT
Tuesday, April 10, 2018

Business Name:

Thatcher Company of California, Inc.

Business Address

8625 Unsworth Avenue

Sacramento, CA 95828

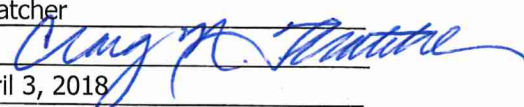
Telephone Number: (800) 348-0034 Ext. 2538

Facsimile Number: (916) 389-2516

Email Address: kay.conley-rawson@tchem.com;
wendy.richmond@tchem.com

Authorized Representative (Please Print):

Craig N. Thatcher

Signature: 

Date: April 3, 2018

I. All costs except California State sales tax for the purchase of Ferric Chloride must be included in the amount shown below on this Bid Form, including any and all mill assessments, fees, excise taxes, transportation charges, etc. Any exceptions to the bid must be noted under Specific Deviations on the Standard Agreement. Bidders shall submit bids per unit of measure as specified in attached Exhibit A to Bid Form.

II. Bidders must submit all of the following, attached to this Bid Form:

- a. An affidavit of compliance to the appropriate American Water Works Association (AWWA) and/or National Sanitation Foundation (NSF) standard is required for all chemicals and polymers being provided for potable water treatment. Bidders must include a statement by the chemical manufacturer, signed by an authorized representative on letterhead stationery, attesting to the affidavit's validity. In lieu of submitting an affidavit of compliance with AWWA/NSF standards and a letter attesting to the affidavit's validity, a current printout from NSF.org is acceptable.
- b. A representative analysis of the chemical to be supplied, as prepared by a reputable outside laboratory or bidder's in-house laboratory if ISO certified.
- c. Product Bulletin and Typical Properties.
- d. Safety Data Sheet (SDS).
- e. If applicable, the name, address, and contact information for the third party hauling company as well as an affidavit signed by the Bidder that the third party hauler can and will deliver the chemical to each and every participating BACC Agency.

BAY AREA CHEMICAL CONSORTIUM
EXHIBIT A TO BID FORM
BID NO. 06-2018
FERRIC CHLORIDE

*Bidders shall submit bids in US\$ per unit of measure as indicated below, FOB Destination.
 Bid prices must be based on bulk deliveries of 2,000 gallons or 1 ton or more. Refer to paragraph 2.4 Bid Pricing for full details.*

	Unit of Measure	Bid Price per Unit of Measure	
Ferric Chloride			
<u>Central Valley</u>	dry ton	\$ 566.00	✓
City of Merced			
City of Stockton			
<u>East Bay</u>	dry ton	\$ 555.00	✓
Alameda County Water District			
City of Hayward			
Oro Loma Sanitary District			
<u>Marin Sonoma Napa</u>	dry ton	\$ 553.00	✓
Central Marin Sanitation Agency			
Las Gallinas Valley Sanitary District			
Marin Municipal Water District			
Napa Sanitation District			
North Marin Water District			
Sausalito Marin City Sanitary District			
<u>North Bay</u>	dry ton	\$ 560.00	✓
City of Pinole (Pinole/Hercules WPCP)			
<u>Peninsula</u>	dry ton	\$ 569.00	✓
City of South San Francisco			
Sewer Authority Mid-Coastside			
Silicon Valley Clean Water (SVCW)			
<u>Sacramento</u>	dry ton	\$ 551.00	✓
City of Roseville			
Woodland-Davis Clean Water Agency			
<u>South Bay</u>	dry ton	\$ 566.00	✓
San Jose - Santa Clara Regional Wastewater Facility			
Santa Clara Valley Water District			
<u>Tri Valley</u>	dry ton	\$ 547.00	✓
City of Livermore			
Zone 7 Water Agency			

ADDITION TO TERMS AND CONDITIONS, SECTION 4, 4.1 INDEMNIFICATION: In no event shall either party be liable to the other for incidental, consequential, indirect, special, exemplary, or punitive damages (including, but not limited to, loss of profits) arising out of any breach of this Agreement or any of the obligations under this Agreement.

THATCHER COMPANY OF CALIFORNIA, INC.
8625 Unsworth Avenue, Sacramento, CA 95828



ATTACHMENT B

Phone (916) 389-2517
Fax (916) 389-2516

April 3, 2018

AFFIDAVIT OF COMPLIANCE

Ferric Chloride

This affidavit certifies and warrants the ferric chloride to be delivered to the Bay Area Chemical Consortium Agencies by Thatcher Company of California, Inc. fully complies with A.W.W.A. Specifications and ANSI/NSF Standard 60.



Craig N. Thatcher, President



The Public Health and Safety Organization

NSF Product and Service Listings

These NSF Official Listings are current as of **Thursday, April 05, 2018** at 12:15 a.m. Eastern Time. Please contact NSF International to confirm the status of any Listing, report errors, or make suggestions.

Alert: NSF is concerned about fraudulent downloading and manipulation of website text. Always confirm this information by clicking on the below link for the most accurate information: <http://info.nsf.org/Certified/PwsChemicals/Listings.asp?CompanyName=US+Magnesium&ChemicalName=Ferric+Chloride&>

NSF/ANSI 60 Drinking Water Treatment Chemicals - Health Effects

US Magnesium, LLC

238 North 2200 West

Salt Lake City, UT 84116

United States

801-532-2043

Visit this company's website

(<http://www.usmagnesium.com>)

Facility : Rowley, UT

Ferric Chloride

Trade Designation

FeCl₃

Product Function

Coagulation & Flocculation

Max Use

250mg/L

Ferric Chloride	Coagulation & Flocculation	250mg/L
Ferric Chloride Liquid	Coagulation & Flocculation	250mg/L
Ferric Chloride Solution	Coagulation & Flocculation	250mg/L
Iron (III) Chloride	Coagulation & Flocculation	250mg/L

Number of matching Manufacturers is 1

Number of matching Products is 5

Processing time was 0 seconds

**NSF International**

789 N. Dixboro Rd. Ann Arbor, MI 48105, USA
1-800.NSF.MARK | +1-734.769.8010 | www.nsf.org

TEST REPORT**Send To: C0050978**

Mr. Tom Tripp
US Magnesium, LLC
238 North 2200 West
Salt Lake City, UT 84116

Facility: C0050979

US Magnesium, LLC
12819 Skull Valley Road
Rowley UT 84029
United States

Result	PASS	Report Date	12-OCT-2017
Customer Name	US Magnesium, LLC		
Tested To	NSF/ANSI 60		
Description	Ferric Chloride Liquid		
Trade Designation	Ferric Chloride		
Test Type	Annual Collection		
Job Number	A-00237855		
Project Number	W0377767		
Project Manager	Holly Simon		

This report documents the testing of the referenced product to the requirements of NSF/ANSI Standard 60 (Drinking Water Treatment Chemicals - Health Effects). This standard establishes minimum requirements for chemicals, the chemical contaminants, and impurities that are added to drinking water from drinking water treatment chemicals. Contaminants produced as by-products through reaction of the treatment chemical with a constituent of the drinking water are not covered by this Standard. Reference the "About the Standard" section at the end of this report for additional information about NSF/ANSI Standard 60 and the products covered under this Standard.

Thank you for having your product tested by NSF International.

Please contact your Project Manager if you have any questions or concerns pertaining to this report.

Report Authorization

Amanda Phelka - Director, Toxicology Services

Date 12-OCT-2017

General Information

Standard: NSF/ANSI 60
 Chemical Name: Ferric Chloride
 DCC Number: DA07654
 Lot Number/Product Identifier: 09.05.2017
 Maximum Use Level: 250
 Monitor Code: B
 Physical Description of Sample: Liquid
 Trade Designation/Model Number: Ferric Chloride

Sample Id: **S-0001419601**
 Description: Ferric Chloride | Liquid
 Sampled Date: 27-Sep-2017
 Received Date: 19-Sep-2017

Tox Normalization Information:

Calculated NF 0.0980
 Preparation method used K
 MUL 250 mg/L
 Compound Reference Key: SPAC

Lab Normalization Information:

Date exposure completed 27-SEP-2017
 Final volume of solution 1 L
 Mass of material used 2550 mg

Normalization Calculation:

Normalized Result = Test Result (ug/L) * NF Where NF = $MUL (mg/L) * \frac{\text{Final Volume Of Solution (L)}}{\text{Mass of Material Used (mg)}}$

- MUL = Maximum Use Level;
- Mass of Material Used = The mass of sample analyzed in the laboratory;
- Final Volume of Solution = The volume of water used to dilute the sample;
- An additional factor may be used to adjust the analytical result to field use conditions to account for product carryover, flushing, or other assumptions stipulated with the use of the product. If an additional factor is used, it is included in the information above.

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab							
Metals II in water by ICPMS (Ref: EPA 200.8)							
Arsenic	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	1	Pass
Barium	ug/L	31	14	16	1.6	200	Pass
Beryllium	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.4	Pass
Cadmium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.5	Pass
Chromium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)		
Copper	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	130	Pass
Mercury	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
Lead	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	1.5	Pass
Antimony	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.6	Pass
Selenium	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	5	Pass
Thallium	ug/L	ND(0.2)	ND(0.2)	ND(0.2)	ND(0.02)	0.2	Pass
BASE/NEUTRAL/ACID EPA METHOD 625 Scan for Tentatively Identified Compounds							
No Compounds Detected	ug/L	ND(20)		ND(20)	ND(2)		
Scan Control Complete		TRUE					
Semivolatile Compounds, Base/Neutral/Acid Target 625, Data Workup							
Pyridine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		



Sample Id: S-0001419601

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
Nitrosodimethylamine (N-)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
N-Nitrosomethylethylamine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.002	Pass
5-Methyl-2-hexanone (MIAK)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	6	Pass
1-Methoxy-2-propanol acetate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	70	Pass
2-Heptanone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
Cyclohexanone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Nitrosodiethylamine (N-)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Isobutylisobutyrate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
Aniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Phenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Di(chloroethyl) ether	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.03	Pass
2-Chlorophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	3	Pass
2,3-Benzofuran	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
1,3-Dichlorobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	60	Pass
1,4-Dichlorobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	7.5	Pass
3-Cyclohexene-1-carbonitrile	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
2-Ethylhexanol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	80	Pass
Benzyl alcohol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	3000	Pass
1,2-Dichlorobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	60	Pass
bis(2-Chloroisopropyl)ether	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
2-Methylphenol (o-Cresol)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	40	Pass
N-Methylaniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
Acetophenone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
N-Nitrosodi-n-propylamine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.005	Pass
N-Nitrosopyrrolidine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.02	Pass
3- and 4-Methylphenol (m&p-Cresol)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Hexachloroethane	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.9	Pass
2-Phenyl-2-propanol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
N-Nitrosomorpholine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.004	Pass
Nitrobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2,6-Dimethylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.4	Pass
N-Vinylpyrrolidinone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
N-Nitrosopiperidine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.005	Pass
Triethylphosphate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Isophorone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	40	Pass
2-Nitrophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2,4-Dimethylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
bis(2-Chloroethoxy)methane	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		



Sample Id: S-0001419601

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
2,4-Dichlorophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	5	Pass
Trichlorobenzene (1,2,4-)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	7	Pass
Naphthalene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	10	Pass
4-Chloroaniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
1,1,3,3,-Tetramethyl-2-thiourea	ug/L	ND(20)	ND(4)	ND(20)	ND(2.0)	1	Pass
Hexachlorobutadiene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.4	Pass
Benzothiazole	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
N-Nitrosodi-n-butylamine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.006	Pass
4-Chloro-3-methylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
p-tert-Butylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
2-Ethylhexyl glycidyl ether	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
2,6-Di-t-butyl-4-methylphenol(BHT)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	10	Pass
Methylnaphthalene, 2-	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	3	Pass
Cyclododecane	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2,4,5-Trichlorophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	70	Pass
2,4,6-trichlorophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
1(3H)-Isobenzofuranone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2-Chloronaphthalene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2-Nitroaniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
1,1'-(1,3-Phenylene)bis ethanone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	10	Pass
2,6-Di-tert-butylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
Dimethylphthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
1,1'-(1,4-Phenylene)bis ethanone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
Acenaphthylene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
Benzenedimethanol, a,a,a',a'-tetramethyl-1,3-	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	5	Pass
2,6-Dinitrotoluene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
2,4-Dinitrotoluene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Benzenedimethanol, a,a,a',a'-Tetramethyl-1,4-	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	5	Pass
2,4-Di-tert-butylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	10	Pass
Dimethyl terephthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	300	Pass
Acenaphthene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Dibenzofuran	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Ethyl-4-ethoxybenzoate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	50	Pass
4-Nitrophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	6	Pass
Cyclododecanone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Diethyl Phthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	600	Pass
p-tert-Octylphenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	10	Pass
Fluorene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	30	Pass



Sample Id: S-0001419601

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
4-Chlorophenylphenylether	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
3-Nitroaniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
4-Nitroaniline	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	4	Pass
Nitrosodiphenylamine (N-)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Azobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
4-Bromophenylphenylether	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Hexachlorobenzene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Pentachlorophenol	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Phenanthrene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Anthracene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Diisobutyl phthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	80	Pass
Dibutyl phthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	70	Pass
Diphenyl sulfone	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.3	Pass
Hydroxymethylphenylbenzotriazole	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Fluoranthene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Pyrene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Butyl benzyl phthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	100	Pass
Di(2-ethylhexyl)adipate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
3,3-Dichlorobenzidine	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Benzo(a)anthracene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Di(2-ethylhexyl)phthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Chrysene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.02	Pass
Di-n-octylphthalate	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Benzo(b)fluoranthene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)	0.02	Pass
Benzo(k)fluoranthene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Benzo(a)Pyrene (PAH)	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Dibenzo(a,h)anthracene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Indeno(1,2,3-cd)pyrene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Benzo(g,h,i)perylene	ug/L	ND(10)	ND(2)	ND(10)	ND(0.98)		
Volatile Organic Compounds (Ref: EPA 524.2)							
Dichlorodifluoromethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
Chloromethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	3	Pass
Vinyl Chloride	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.2	Pass
Bromomethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	1	Pass
Chloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.04	Pass
Trichlorofluoromethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	50	Pass
Trichlorotrifluoroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
Methylene Chloride	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass



Sample Id: S-0001419601

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
1,1-Dichloroethylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.7	Pass
trans-1,2-Dichloroethylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
1,1-Dichloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
2,2-Dichloropropane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
cis-1,2-Dichloroethylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	7	Pass
Chloroform	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	[TTHM]	
Bromochloromethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
1,1,1-Trichloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	20	Pass
1,1-Dichloropropene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
Carbon Tetrachloride	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
1,2-Dichloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
Trichloroethylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
1,2-Dichloropropane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
Bromodichloromethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	[TTHM]	
Dibromomethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
cis-1,3-Dichloropropene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.2	Pass
trans-1,3-Dichloropropene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.2	Pass
1,1,2-Trichloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
1,3-Dichloropropane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
Tetrachloroethylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
Chlorodibromomethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	[TTHM]	
Chlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
1,1,1,2-Tetrachloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	1	Pass
Bromoform	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	[TTHM]	
1,1,2,2-Tetrachloroethane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.2	Pass
1,2,3-Trichloropropane	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	4	Pass
1,3-Dichlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	60	Pass
1,4-Dichlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	7.5	Pass
1,2-Dichlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	60	Pass
Carbon Disulfide	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	70	Pass
Methyl-tert-Butyl Ether (MTBE)	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
tert-Butyl ethyl ether	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	2000	Pass
Methyl Ethyl Ketone	ug/L	ND(5)	ND(5)	ND(5)	ND(0.5)	400	Pass
Methyl Isobutyl Ketone	ug/L	ND(5)	ND(5)	ND(5)	ND(0.5)	700	Pass
Toluene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	100	Pass
Ethyl Benzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	70	Pass
m+p-Xylenes	ug/L	ND(1)	ND(1)	ND(1)	ND(0.1)	[Xylenes]	
o-Xylene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	[Xylenes]	



Sample Id: S-0001419601

Testing Parameter	Units	Sample	Control	Result	Norm. Result	Acceptance Criteria(1)	Evaluation Status
Chemistry Lab (Continued)							
Styrene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
Isopropylbenzene (Cumene)	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	70	Pass
n-Propylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
Bromobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
2-Chlorotoluene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
4-Chlorotoluene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
1,3,5-Trimethylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
tert-Butylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
1,2,4-Trimethylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
sec-Butylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
p-Isopropyltoluene (Cymene)	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
1,2,3-Trimethylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
n-Butylbenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.3	Pass
1,2,4-Trichlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	7	Pass
Hexachlorobutadiene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.4	Pass
1,2,3-Trichlorobenzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)		
Naphthalene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	10	Pass
Benzene	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	0.5	Pass
Total Trihalomethanes	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	8	Pass
Total Xylenes	ug/L	ND(0.5)	ND(0.5)	ND(0.5)	ND(0.05)	1000	Pass
1 - If the acceptance criteria is blank and the evaluation status is "Fail", then the criteria used will be noted on the letter accompanying these results.							
[Xylenes] - Acceptance based on Total Xylenes							
[TTHM] - Acceptance based on Total Trihalomethanes							

**Common Terms and Acronyms Used:**

Sample.....	Test result on the submitted product sample after prepared or exposed in accordance with the standard.
Control.....	Test result on a laboratory blank sample analyzed in parallel with the sample.
Result.....	Sample test result minus the Control test result.
Normalized Result..	Result normalized in accordance with the test standard to reflect potential at-the-tap concentrations
ND().....	Result is below the detection level of the analytical procedure as identified in the parenthesis.
DCC Number.....	NSF document control code of the registered formulation of the product tested
ug/L.....	Microgram per liter = 0.001 milligram per liter (mg/L)
SPAC.....	Acceptance criteria of the standard (Single Product Allowable Concentration)

References to Testing Procedures:

NSF Reference	Parameter / Test Description
C1183	Metals II in water by ICPMS (Ref: EPA 200.8)
C2023	BASE/NEUTRAL/ACID EPA METHOD 625 Scan for Tentatively Identified Compounds (TICs)
C2024	Semivolatile Compounds, Base/Neutral/Acid Target 625, Data Workup
C4662	Volatile Organic Compounds (Ref: EPA 524.2)

Test descriptions preceded by an asterisk "*" indicate that testing has been performed per NSF International requirements but is not within its scope of accreditation.

Testing Laboratories:

	Id	Address
All work performed at: →	NSF_AA	NSF International 789 N. Dixboro Road Ann Arbor MI 48105

**About the Standard:****NSF/ANSI Standard 60: Drinking Water Treatment Chemicals - Health Effects**

NSF/ANSI 60 establishes minimum health effects requirements for the chemicals, the chemical contaminants, and the impurities that are directly added to drinking water from drinking water treatment chemicals. It does not establish performance or taste and odor requirements. The standard contains requirements for chemicals that are directly added to water and are intended to be present in the finished water as well as other chemical products that are added to water but are not intended to be present in the finished water. Chemicals covered by this Standard include, but are not limited to, coagulation and flocculation chemicals, softening, precipitation, sequestering, pH adjustment, and corrosion/scale control chemicals, disinfection and oxidation chemicals, miscellaneous treatment chemicals, and miscellaneous water supply chemicals.

The testing performed to this standard is done to estimate the level of contaminants or impurities added to drinking water when the chemical is used at the "Maximum Use Level" under attestation. Prior to testing, information is obtained on the formulation and sources of supply used to manufacture the chemical. This information is then reviewed along with the minimum requirements of the standard to establish the potential contaminants of concern. A representative sample of chemical is obtained for testing. The chemical sample is prepared for analysis through specific methods established in the standard based on the type of chemical and then is analyzed for potential contaminants determined during the formulation review. The laboratory results are normalized to represent potential at-the-tap values and then compared to the "single product allowable concentration" (SPAC) established by the standard. The product is found in compliance with the standard if the normalized value is less than or equal to the allowable concentration.



Ferric Chloride Liquid Solution

US Magnesium Ferric Chloride Liquid Solution is a reactant and primary coagulant used in both potable and wastewater clarification. It is used for color removal, phosphate removal, heavy metal removal, hydrogen sulfide control, as well as in lime softening and sludge conditioning applications.

Description

US Magnesium's Liquid Ferric Chloride is a concentrated solution of Iron III Chloride (FeCl_3) in water. The solution has a pH <1.

Ferric Chloride, FeCl_3	
Sp. Gr.	1.38 – 1.44
% FeCl_2	0.20 – 0.54
% FeCl_3	39.0 – 42.4
% HCl	0.05 – 0.5
% Insoluble	≤0.02

Certification/Approval

US Magnesium produces Ferric Chloride and is compliant to ANSI/NSF 60. Nonstandard formulations should be the subject of special inquiry.

Shipping Containers

Bulk tank truck and tank car.

Handling & Safety

Ferric Chloride is considered hazardous by definition of the Hazard Communication Standard (29 CFR 1910.1200) and should be handled in a manner that is consistent with acceptable practices. Please obtain the Ferric Chloride Material Safety Data Sheet from US Magnesium for more information.

Contact of Liquid Ferric Chloride with skin, eyes and clothing should be avoided. Ferric Chloride reacts strongly with many different metals. However, most handling situations are reliably addressed through the use of common compatible plastic materials such as FRP, PVC, Polyethylene, Polypropylene and Teflon. Consult your equipment supplier for further information.

US Magnesium LLC provides this information in good faith and makes no representations to its accuracy or comprehensiveness. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using the product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose. US Magnesium LLC makes no representations or warranties, either expressed or implied, including without limitation any warranties of merchantability for a particular purpose with respect to the information set forth herein or the product to which the information refers. *User accepts full responsibility for compliance with all applicable Federal, state and local laws and regulations.*

US Magnesium LLC

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(801) 532-2043 – FAX (801) 534-1407

www.usmagnesium.com



SAFETY DATA SHEET (SDS)

SECTION 1: IDENTIFICATION

Product Name Ferric Chloride Solution

Synonyms, trade names Iron (III) Chloride, Iron Trichloride

Product Use Coagulation and Flocculation

Restrictions Maximum use level 250mg/L

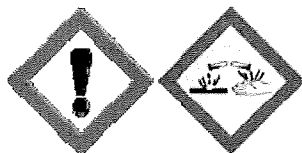
Manufacturer/Supplier
 US Magnesium LLC (US Mag) 238 North 2200 West
 Salt Lake City, UT 84116-2921
 Tel: (801) 532-2043
 Fax: (801) 534-1407

Emergency Phone (801) 532-1522, Ext 1440


 Certified to
 NSF/ANSI 60

SECTION 2: HAZARDS IDENTIFICATION

Label Elements



Signal Word Danger

Hazard Statement

Physical Hazards May be corrosive to metals

Health Hazards

EYE: Causes severe eye damage

SKIN CONTACT: Contact with skin will result in severe irritation and burns

SKIN ABSORPTION: N/A

INGESTION: Harmful if swallowed

INHALATION: Breathing in mists or aerosols may produce respiratory irritation.

OSHA Defined Hazards Precautionary Statements Prevention

Do not breathe dust/fume/gas/mist/vapors/spray. Wash exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product. Avoid release to the environment. Wear protective gloves/protective clothing/eye protection/face protection.

Revision #: 1 Document ID: 7675 Document approved by supervision on .

Printouts of this document may be out of date and should be considered uncontrolled. To accomplish work, the on-line document should be used.

Disclaimer: NOTICE: The information herein is given in good faith, but no warranty, expressed or implied, is made by US Magnesium, LLC.



SAFETY DATA SHEET (SDS)

Response

If Inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician.

If swallowed: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

If on skin/hair: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do- continue rinsing.

Storage

Keep only in original container.

Disposal

Dispose of in accordance with Federal, State and Local environmental laws.

Environmental Hazard

Toxic to aquatic life

**Supplemental Information
Hazard Symbol**

N/A

Hazard Statement

N/A

**Precautionary Statements
Prevention**

N/A

Response

N/A

SECTION 3: HAZARDS IDENTIFICATION

Substances

<u>Chemical Name</u>	<u>CAS Number</u>	<u>% by Weight</u>
Ferric Chloride	7705-08-0	38 - 42%
Magnesium Chloride	7786-30-3	0 - 3%
Ferrous Chloride	7758-94-3	0 - 1%
Hydrochloric Acid	7647-01-0	0 - 1%
Water	7732-18-5	Balance

SECTION 4: FIRST AID MEASURES

Eyes: Exposed eyes should be irrigated with copious amounts of water for at least 15 minutes. If irritation, lacrimation, swelling of photophobia persists, the patient should be taken to a health care facility.

Skin Remove contaminated clothing and was thoroughly with copious amounts of soap and water for at least 15 minutes. A physician may need to be seen

Ingestion DO NOT INDUCE VOMITING! Do not give bicarbonate to neutralize. Activated charcoal is of no value. Passing a nasogastric tube into the stomach is controversial at this time. Irrigate all affected areas with copious amounts of water. Immediately dilute with 4 to 6 oz. of milk or water in adults and 2 to 4 oz. in children. Get immediate medical attention! In severe casts of gastrointestinal necrosis, surgical consultation may be required.



SAFETY DATA SHEET (SDS)

Inhalation	Remove from affected area and give oxygen/artificial respiration if needed. Seek medical attention for breathing difficulty.
Laboratory	Obtain CBC and electrolytes, if needed.
Note to Physician	N/A
Medical Conditions Generally Aggravated by the Material	None reported

SECTION 5: FIRE-FIGHTING MEASURES

Flammable Limits in Air	Upper: N/A Lower N/A
Flash Point	None
Method Used	None
Suitable Extinguishing Media	Non flammable or combustible: Use extinguishing media suitable for surrounding material.
Special Protective Equipment and Precautions for Firefighters	Firefighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in a positive pressure mode. Move exposed containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool.
Specific Hazards arising from the chemical	Irritating chlorine and hydrogen chloride fumes may be present in fire involving this substance.
Fire-fighting equipment/instructions	Use water spray or foam in large fires. Wear self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures	Restrict access to area until completion of clean-up. Ensure clean-up is conducted by trained personnel only. All persons dealing with clean-up should wear the appropriate protective equipment including self-contained breathing apparatus and boots. Keep all other personnel upwind and away from the spill/release.
Environmental precautions	Ensure spilled product does not enter drains, sewers, waterways, or confined spaces. Dike far ahead of the spill for later recovery or disposal.
Methods and materials for containment and cleaning	Ventilate area of release. Stop leak if you can do so without risk. Neutralize spill with lime or soda ash. Absorb neutralized spill with inert absorbent material, then place absorbent material into a suitable container for later disposal. Flush spill area with water, in accordance with local, state, and federal regulations.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling	Material is corrosive. Wear appropriate protective equipment. Use in a well ventilated area with proper engineering controls. Avoid inhalation of vapors. Avoid contact with skin, eyes and clothing. Keep away from heat and flame. Keep away from metals and other incompatible materials. Protect container from physical damage. Do not strike containers or fittings with tools or hard objects. Keep container closed and dry.
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Wash thoroughly after handling. Emptied container may retain vapor and product residue.

Conditions for safe storage Corrosive to many metals, do not store in metal containers.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational exposure limits	OSHA-PEL	ACGIH – TLV (2007)
Ferric Chloride FeCl ₃	1 mg/m ³ (as Fe)	1 mg/m ³ (as Fe)
Ferrous Chloride – FeCl ₂	1 mg/m ³ (as Fe)	1 mg/m ³ (as Fe)
MgCl ₂	Not Listed	Not Listed
Hydrochloric Acid	7 mg/m ³ (c)	STEL – 2 ppm ceiling

(c) – ceiling limit in OSHA “Air Contaminants” 29 CFR 1910.1000

Exposure Guidelines Check State and local regulation for other applicable exposure limits

Engineering Controls Ventilation: General and local ventilation as situation dictates.

Personal Protection Methods

Respiratory Protection	Follow OSHA regulations, use NIOSH approved respirators and cartridges as needed.
Skin Protection	Use of rubber gloves and protective suits may be needed where splash or spray hazards exist.
Eye Protection	Use chemical goggles, where splash hazard exists wear full-face shield.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Reddish brown solution
Odor	Slight odor
Physical State	Aqueous Solution
pH as Supplied	<2.0
Boiling Point	225° – 250° F
Vapor Pressure (mmHg)	N/A
Vapor Density (Air = 1)	N/A
Specific Gravity (H₂O = 1)	1.2 – 1.48
Solubility in Water	Completely soluble

SECTION 10: STABILITY AND REACTIVITY

Conditions to Avoid (Stability) Stable under normal use and storage.

Incompatibility (Material to Avoid) Materials to avoid: Corrosive metal salt solutions may generate hydrogen gas when contacting alkaline metals. Rapidly corrodes most metals. Avoid contact with aluminum alloys, carbon steel, copper, copper alloys and nylon. Also avoid contact with all



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Hazardous Decomposition Products	alkaline materials. Reacts violently with allyl chloride, sodium and potassium. When heated to composition, Ferric Chloride emits highly toxic fumes of HCl and iron oxides.
Hazardous Polymerization	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on likely routes of exposure:

Eye Contact	Exposure results in pain, swelling, lacrimation, corneal erosions, photophobia and blindness. May cause burns to inner eyelids.
Skin Contact	Prolonged contact may cause irritation, dermatitis, blistering and staining to occur. Highly toxic by intravenous route.
Ingestion	Low toxicity in small quantities. Larger doses (30 mg/kg) may cause stomach irritation resulting in nausea, vomiting and diarrhea. Mucous membranes and gastrointestinal tract may also be burned. Pink urine discoloration is a strong indicator of iron poisoning. Liver cirrhosis, fibrosis of the pancreas, coma and death may follow. Oral ingestion may produce mild to moderately severe oral and esophageal burns with severe stomach burns. Vomit (coffee grounds in appearance), drooling and pain may occur. Acidosis and hemolysis may occur due to absorption.
Inhalation	Product mists are irritating to mucous membranes, respiratory tract and lung tissues. May cause coughing and difficulty breathing. Excessive exposures have also resulted in bronchitis symptoms, chest pain, dyspnea and pulmonary edema. The onset of respiratory symptoms may be delayed by several hours.
Primary Route of Entry	Inhalation, ingestion and skin contact.
Symptoms related to the physical, chemical and toxicological characteristics:	
Overexposure	Hydrochloric acid and high concentrations of hydrogen chloride gas are highly corrosive to eyes, skin and mucous membranes.
Acute Overexposure	None known.
Information on Toxicological Effects Systemic and Other Effects	ESTIMATED FATAL DOSE: Ferric salts is 30 grams. LD50 (Mouse) = 1278 mg/kg LD50 (Rat) = 1872 mg/m3 TOXIC HAZARD RATING: Moderately toxic. Probable oral lethal dose in humans ranges from .5-5g/kg or 1 oz. to 1 pint (1 lb.).

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Not available.
Persistence and degradability	Not available.
Bioaccumulative potential	Does not accumulate.

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Document approved by supervision on .

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Mobility in soil Not available.

SECTION 13: DISPOSAL CONSIDERATIONS

Disposal instructions STEPS TO BE TAKEN IN CASE OF RELEASE: Neutralize with lime or sodium bicarbonate. Transfer to an EPA approved container. When neutralized, dispose of in accordance with local, state or federal environmental regulations. Dike spills to prevent run-off onto public land or waterways. (CERCLA RQ 1000 lbs.)

Persons in charge of vessels or facilities are required to notify the National Response Center (NRC) immediately, as required under 40CFR 302.6, when there is a release of this hazardous substance in an amount equal to or greater than its reportable quantity of 1000 lbs. or 454 kg. The toll free telephone number of the NRC is (800) 424-8802. Serious penalties are prescribed for failing to make the required notifications. Calling CHEMTREK, does not constitute compliance with this requirement. Only a phone call to the NRC satisfies these reporting requirements.

Local disposal regulations Dispose of in accordance with Federal, State and Local environmental laws.

Contaminated packaging

SECTION 14: TRANSPORT INFORMATION

U.S. Dept of Transportation

Hazard Class/ID Number **DOT**
 Proper Shipping Name: Ferric chloride solution
 Hazard Class: Class 8
 UN/NA #: UN 2582

IMO
 Proper Shipping Name: Ferric chloride solution
 Hazard Class: Corrosive material, 8
 UN #: 2582

Packing Group/Label Statements **DOT**
 DOT Labels: Corrosive
 DOT Placards: Corrosive
 Packaging Group: III

IMO
 IMO Label: Corrosive
 Packaging Group: III
 Shipping Containers: Rubber-lined steel tank cars/trucks; polyethylene drums, bottles
 Storage Conditions: Keep containers closed

SECTION 15: REGULATORY INFORMATION

U.S. Federal Regulations Ferric chloride TSCA 8(b) inventory: Ferric chloride CERCLA:
 Hazardous substances.: Ferric chloride
 OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR



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SARA TITLE III (Superfund
Amendment and
Reauthorization Act) 1910.1200).
N/A

313 Reportable Ingredients: Not available

SECTION 16: OTHER INFORMATION

Health: 3 Intense or continues but not chronic exposure could cause temporary incapacitation or moderate residual injury

Flammability: 0 Will not burn under typical fire conditions

Instability: 2 Fairly stable, even under fire exposure conditions, and is not reactive with water. When heated to composition, Ferric Chloride emits highly toxic fumes of HCl and iron oxides

Special: None Corrosive to most metals

THATCHER COMPANY OF CALIFORNIA, INC.

8625 Unsworth Avenue, Sacramento, CA 95828



Phone (916) 389-2517

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Contracts & Agreements:

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Thatcher Company of California, Inc.
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Requests for Bids, Quotations, Certificate of Insurance:

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Payments: Thatcher Company of California, Inc.
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Salt Lake City, UT 84127-0407

Order Placement: Kay Conley-Rawson
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Phone Number: (800) 348-0034 Ext. 2538

24/7 Customer & Transportation Service:

(800) 375-7758

Bid Tabulation:

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EXHIBIT B:
Insurance Requirements
(Chemical Vendor - Ferric Chloride)

Contractor shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder and the results of that work by the Contractor, their agents, representatives, employees or subcontractors.

MINIMUM SCOPE AND LIMIT OF INSURANCE

Coverage shall be at least as broad as:

1. **Commercial General Liability (CGL):** Insurance Services Office Form CG 00 01 covering CGL on an "occurrence" basis, including products and completed operations, property damage, bodily injury and personal & advertising injury with limits no less than **\$3,000,000** per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. **Automobile Liability (AL):** ISO Form Number CA 00 01 covering any auto (Code 1) with combined single limits of liability of no less than **\$1,000,000** per accident for bodily injury and property damage, including **MCS90** endorsement form.
3. **Workers' Compensation:** as required by the State of California, with Statutory Limits, and Employer's Liability Insurance with limit of no less than **\$1,000,000** per accident for bodily injury or disease.
4. **Environmental Impairment/Contractors' Pollution Legal Liability** with limits no less than **\$1,000,000** per occurrence or claim, to include liability for Groundwater contamination, Explosion, Sudden and Accidental and Environmental cleanup, etc.

If the contractor maintains higher limits than the minimums shown above, the City of Stockton requires and shall be entitled to coverage for the higher limits maintained by the contractor. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to the City of Stockton.

Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

- ***Additional Insured Status***
 The *City of Stockton, its Mayor, Council, officers, representatives, agents, employees and volunteers* are to be covered as additional insureds on the CGL and AL policy with respect to liability arising out of work or operations performed by or on behalf of the Contractor including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Contractor's insurance (**at least as broad as** ISO Form CG 20 10 11 85 or if not available, through the addition of both

CG 20 10 and CG 20 37 if a later edition is used). Policy shall cover City of Stockton, its Mayor, Council, officers, representatives, agents, employees and volunteers for all locations work is done under this contract.

- **Primary Coverage**

For any claims related to this contract, the Contractor's insurance coverage shall be endorsed as primary insurance as respects the *City of Stockton, its Mayor, Council, officers, representatives, agents, employees and volunteers*. Any insurance or self-insurance maintained by the *City of Stockton, its Mayor, Council, officers, representatives, agents, employees and volunteers* shall be excess of the Contractor's insurance and shall not contribute with it. The City of Stockton does not accept endorsements limiting the Contractor's insurance coverage to sole negligence of the Named Insured.

- **Notice of Cancellation**

Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the City of Stockton.

- **Waiver of Subrogation**

Contractor hereby grants to the City of Stockton a waiver of any right to subrogation which any insurer of said Contractor may acquire against the City of Stockton by virtue of the payment of any loss under such insurance. Contractor agrees to obtain any endorsement that may be necessary to affect this waiver of subrogation, but this provision applies regardless of whether or not the City of Stockton has received a waiver of subrogation endorsement from the insurer.

- **Deductibles and Self-Insured Retentions**

Any deductibles or self-insured retentions must be declared to and approved by the City of Stockton Risk Services. The City of Stockton may require the Contractor to purchase coverage with a lower deductible or retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention.

- **Acceptability of Insurers**

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII if admitted to do business in the State of California; If not admitted to do business in the State of California, insurance is to be placed with insurers with a current A.M. Best's rating of no less than A+:X.

- **Claims Made Policies**

If any of the required policies provide claims-made coverage:

- o The Retroactive Date must be shown, and must be before the date of the contract or the beginning of contract work.

- o If Claims Made policy form is used, a three (3) year discovery and reporting tail period of coverage is required after completion of work.

- ***Verification of Coverage***

Contractor shall furnish the City of Stockton with original certificates and amendatory endorsements required by this clause. All certificates and endorsements are to be received and approved by the City of Stockton Risk Services before work commences. Failure to obtain the required documents prior to the work beginning shall not waive the Contractor's obligation to provide them. The City of Stockton reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time, for any reason or no reason.

- ***Special Risks or Circumstances***

The City of Stockton reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other circumstances.

- ***Certificate holder address***

Proper address for mailing certificates, endorsements and notices shall be:

- o City of Stockton
- o Attention: Risk Services
- o 425 N. El Dorado Street
- o Stockton, CA 95202

City of Stockton Risk Services Phone: 209-937-5037

City of Stockton Risk Services Fax: 209-937-8558

- ***Maintenance of Insurance***

If at any time during the life of the Contract or any extension, the Contractor fails to maintain the required insurance in full force and effect, all work under the Contract shall be discontinued immediately. Any failure to maintain the required insurance shall be sufficient cause for the CITY to terminate this Contract.

- ***Subcontractors***

If the Contractor should subcontract all or any portion of the work to be performed in this contract, the Contractor shall cover the sub-contractor, and/or require each sub-contractor to adhere to all subparagraphs of these Insurance Requirements section. Similarly, any cancellation, lapse, reduction or change of sub-contractor's insurance shall have the same impact as described above.